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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,933	02/25/2004	Toshinobu Homan	4041J-000844	5063

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EXAMINER	
BANKHEAD, GENE LOUIS	
ART UNIT	**PAPER NUMBER**
3744	

DATE MAILED: 07/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/786,933	HOMAN ET AL.	
	Examiner	Art Unit	
	Gene L. Bankhead	3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 February 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,8, and 10-12* is/are rejected.

7)☒ Claim(s) *6,7 and 9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 February 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities: The recitation of "output circuit 107c'" is presumed to be -- output circuit 7c – as indicated by Figure 3. Appropriate correction is required.

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: S96 and S97 of Figure 10. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claim 1,8, and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Ieda (US 6675873).

Regarding claim 1, Ieda discloses a compressor control system of an air conditioner (see Figure 1) with a driving electric motor (column 2 lines 40-45) of a vehicle, a main battery that supplies electric power to the driving electric motor (column 2 lines 40-45) and a compressor in a refrigerant cycle of an air conditioner (column 1 lines 48-56). Ieda further teaches a compressor electric motor (column 3 lines 8-15) with a rotation speed controlled by an electronic control unit 27 (column 3 lines 12-18 and column 4 lines 14-27), and an electronic control unit that controls electric actuators 29 and 30 driven when being applied with a battery voltage (column 3 lines 47-64).

Regarding claim 8, Ieda discloses a compressor inverter 22 connected to a controller 222. Ieda further discloses the controller generates alternating-current voltage and supplies it to an electric compressor motor (column 6 lines 33-39). Ieda further teaches a compressor inverter 22 of the electric motor (column 3 lines 12-20) with a rotation speed controlled by an electronic control unit 27 (column 3 lines 12-18 and column 4 lines 14-27).

In regard to claim 10, see the rejection of claim 1 as the claims cite similar subject matter.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 and 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Iwanami et al. (US 6986645) in view of Tamegai (US 6287081).

Regarding claim 1, Iwanami et al. teaches compressor control system capable of being used for an air conditioner of a vehicle (Figure 1).

Iwanami further teaches a hybrid vehicle with a driving electric motor 30 (column 6 lines 10-20), a main battery 20 capable of supplying electric power to the motor (column 7 lines 10-20). In addition, Iwanami discloses a compressor 140, in a refrigerant cycle 200 of the vehicle air conditioning system, with a motor 130 (column 2

lines 34-53). The motor includes a control means 150, which controls its rotation speed (column 4 lines 10-17).

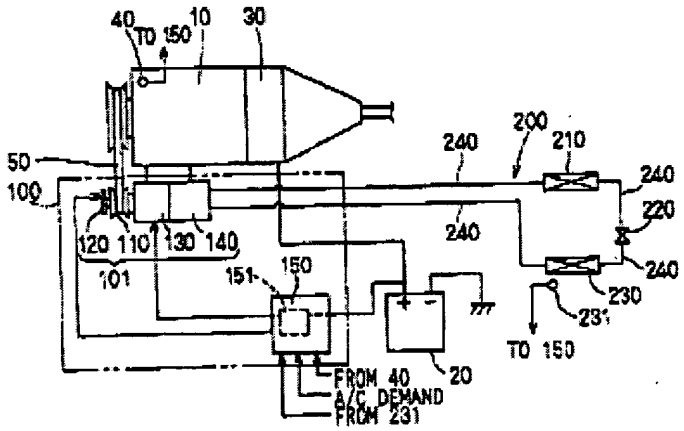

Figure 1 Iwanami et al.

Iwanami et al. fails to teach a driving electronic control unit with a function for controlling a drive power switching of the vehicle. Tamegai (US 6287081) discloses a control apparatus for a hybrid compressor with a control unit 22 capable of switching the vehicle between the driving engine and driving motor mode (column 2 lines 6-16). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Iwanami with Tamegai in order to provide the ability to switch from the driving engine to the driving motor modes of operation, thus taking advantage of the economic benefit of the driving engine and the efficiency benefits of the driving motor.

With regard to claim 10, see the rejection of claim 1 as the claims cite similar subject matter.

Claims 2-4 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwanami et al. in view of Tamegai in further view of Takahashi (US 6330909).

Regarding claims 2 and 3, Iwanami in view of Tamegai fails to teach an air conditioning unit and a driving electronic control unit in communication with one another. Takahashi discloses a vehicle air conditioning system with an air-conditioning electronic control unit (A/C ECU) 5, which controls operation of the air conditioner based on an air conditioning signal input (column 13 lines 37-66). Takahashi further teaches the air conditioning electronic control unit can communicate with a driving electronic control unit of the system (column 14 lines 1-5). Takahashi further discloses the air conditioning ECU 5 and vehicle ECU 38 can communicate with one another through a local area network made up of microcomputers each of which has a CPU, ROM, RAM and additional peripheral circuits (column 14 lines 30-46). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Iwanami in view of Tamegai with Takahashi in order to enable the air conditioning system (A/C ECU) to function separately from the system that drives the vehicle (ECU). This prevents problems that occur with vehicles that have a single (ECU) to operate both the air conditioner and the vehicle. An example of this is when a vehicle engine drives the compressor of the air conditioning system and there is an increase in temperature of the passenger compartment of the vehicle due to a vehicle stoppage.

In regard to claim 4, Takahashi teaches an air-conditioning electronic control unit 5 capable of calculating a target air temperature and blowing amount of conditioned air blown into a vehicle passenger compartment (column 14 lines 58-66 and column 16 lines 10-20 and Figure 2).

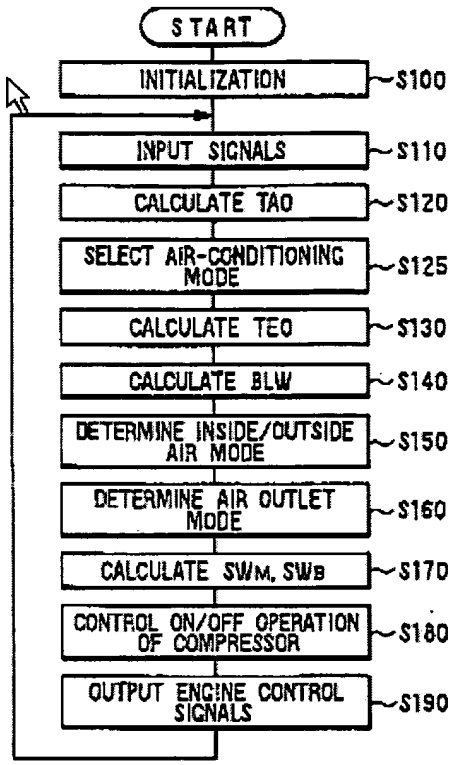

Figure 2 Takahashi et al.

In regard to claims 11 and 12, see the rejections of claim 2-3 respectively as the claims cite similar subject matter.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iwanami et al. in view of Tamegai in further view of Takahashi and Inoue (US 5765383).

Caim 5 differs from Takahashi in calling for an electronic control unit that controls the rotation speed of a compressor based on sensed temperatures. Inoue teaches an automobile air conditioner, which controls the rotation speed of a compressor based on temperatures sensed inside and outside the vehicle (column 2

lines 7-23). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the control system of Inoue into Takahashi in order to control the operation of the compressor of the air conditioning system with maximum control over a wide range of heat loads.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iwanami et al. in view of Tamegai et al. in further view of Takahashi and Yoshida (5441122) and Kawashima (US 5793623).

With respect to claim 8, Takahashi in view of Yoshida teaches a driving electronic control unit which controls the operation of a compressor electric motor, however fails to teach a compressor inverter connected to a DC power source. Kawashiima teaches an air conditioning device with a commercial power source 1 with an inverter circuit 4. A DC voltage output is generated from the commercial power source 1 with a bridge rectifier circuit 2 (column 20 lines 1-7). Based on the DC voltage an AC voltage is generated and supplied to power the system compressor 6 (column 20 lines 1-7). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the air conditioning device of Kawashima into the device of Takahashi as it is well known in the art AC current is more efficient than DC current at producing at the high voltage levels needed to power an electric motor of a vehicle.

Allowable Subject Matter

Claims 6, 7, and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gene L. Bankhead whose telephone number is (571)-272-8963. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571)-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CHERYL TYLER
SUPERVISORY PATENT EXAMINER

Examiner
Art Unit 3744
GB